THE IMPACT OF DIFFERENT TYPES OF ENVIRONMENTAL MESSAGES ON DORMITORY RESIDENTS' ENERGY CONSERVATION BEHAVIOR

By Marian Vernon

INTRODUCTION TO TOPIC

- Surveys suggest that U.S. citizens are now becoming more aware of environmental issues, yet many people do not participate in sustainable behaviors

  Pelletier, et. al. 1997

- Information → Attitudes → Behaviors

  Kollmuss, et. al. 2002

RESEARCH QUESTIONS

- If knowledge alone does not foster sustainable behaviors, how does one successfully convince people to change their lifestyles?

- What types of messages are most effective in changing environmental attitudes and in turn behavior?

EXPERIMENTAL DESIGN

- Energy monitoring competitions can be used to test how college dormitory residents respond to different methods and messages

  Petersen, et. al. 2007

- DePaul's University Hall dormitory is equipped to measure energy consumption by floor

http://housing.depaul.edu/housing/lp/Halls/University/index.aspx

OBERLIN COLLEGE COMPETITION

- Informational feedback technology

http://www.oberlin.edu/dormenergy/

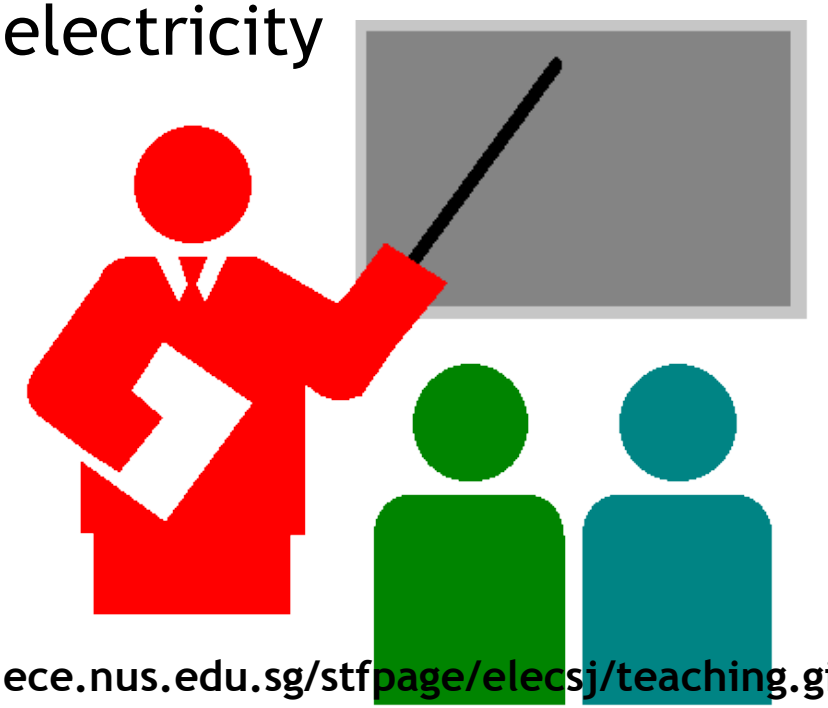
- Use of incentives

Petersen, et. al. 2007

ENVIRONMENTAL EDUCATION

- Relies on the assumption that if college students understand the environmental consequences of energy consumption, they will be motivated for ethical and moral reasons to reduce electricity

- Traditional view



http://www.ece.nus.edu.sg/stfpage/elecsj/teaching.gif

SOCIAL MESSAGES

- **Injunctive norms:** perceptions of which behaviors are typically approved or disapproved

- **Descriptive norms:** perceptions of which behaviors are typically performed

- People tend to do what is **socially approved** and **socially popular**

Cialdini, 2003

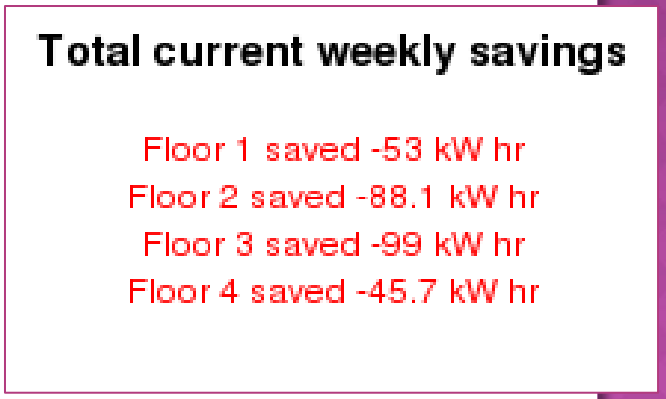
HYPOTHESIS

- Students exposed to complementary descriptive and injunctive normative messages will conserve more energy than students exposed to environmental information

http://alcyumenergysolutions.co.uk/img/i_carbon.jpg

MATERIALS AND METHODS

- University Hall Dormitory is equipped with power monitoring panels that measure the electricity usage by floor (4 floors)
- Power measurements are recorded every 15 minutes, and the data are collected by an automated script every hour at 35 minutes past the hour
- Results posted online at las.depaul.edu/powerproject



COMPETITION DESIGN

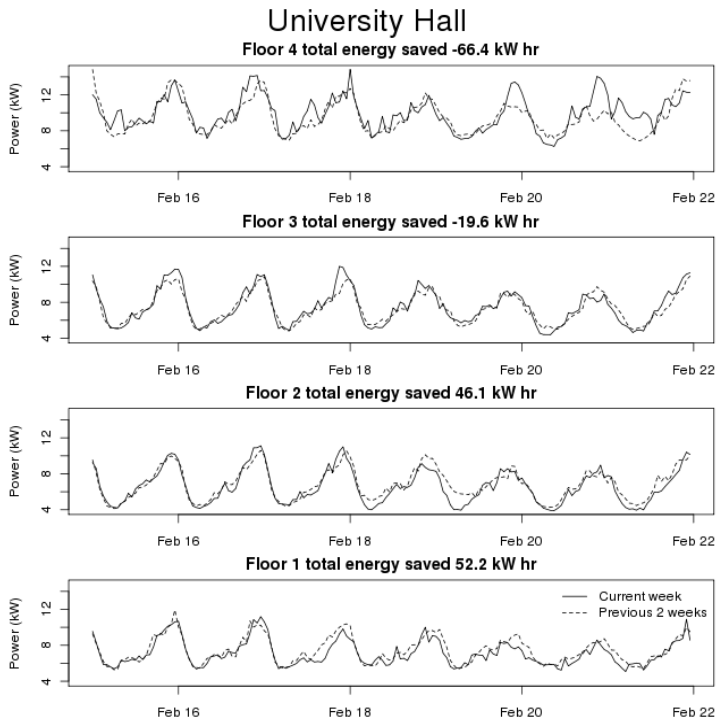
- Competition ran for 1 week
- Compared to baseline energy usage
- Incentive
- Informational feedback technology

Image designed by Martin McGovern

COMPETITION DESIGN CONT.

- Results posted daily in residence hall, could also view results online (las.depaul.edu/powerproject)

Image created by Martin McGovern



EDUCATION FLIER (FLOORS 1,2)

Did you know that every time you turn on your lights, coal plants in Chicago annually release…

- 230 lbs of mercury
- 17,765 tons of sulfur dioxide and nitrogen oxide
- 260,000 lbs of soot

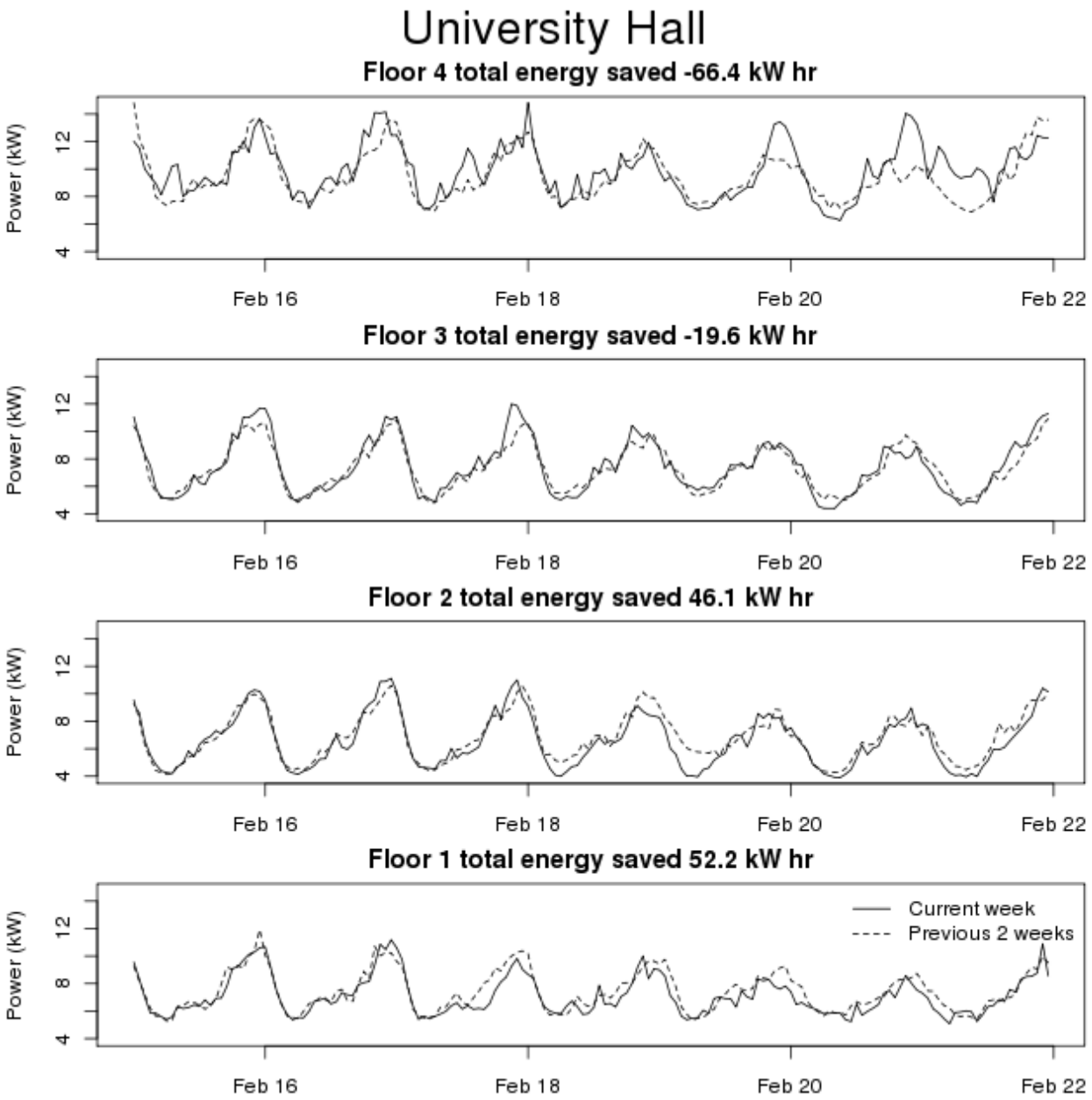
And as a result…

- People living in Chicago and nearby suburbs face some of the highest risks in the nation for cancer, lung disease and other health problems linked to toxic chemicals!

SOCIAL NORM FLIER (FLOORS 3,4)

- During the energy competition last quarter, your **neighbors, roommates, and friends** throughout this dormitory succeeded in reducing energy consumption by **52.5 kwh!**
- **Your efforts** prevented **120.75 pounds of carbon dioxide** from entering in the atmosphere! That's the equivalent of how much carbon dioxide **2 trees absorb annually**!
- The competition results from last quarter show that **all of the residents** in this hall really care for the environment!

RESULTS



KEY

Dotted line: Baseline energy usage (Previous 2 weeks)

Solid line: Energy usage during competition

FINAL RESULTS OF COMPETITION

Floor	Energy saved (in kwh)
Floor 1 (educational flier)	52.2
Floor 2 (educational flier)	46.1
Floor 3 (social norm flier)	-19.6
Floor 4 (social norm flier)	-66.4

DISCUSSION OF RESULTS

- Original hypothesis not supported
- **Alternative hypothesis:** social norm messages are not effective in changing behaviors of individuals who live and interact with each other on a daily basis
  - Observance of others' behaviors and actions
  - Portrayed message different from observances

DISCUSSION, CONT.

- The educational fliers may have provoked an empathetic response in the residents
- Fliers were less forceful, no added pressure of social acceptance
- Low replication number may have resulted in error.

WORKS CITED

- Cialdini, Robert B. "Crafting Normative Messages to Protect the Environment." *Current Directions in Psychological Science* (2003): 1-5. Print.
- Kollmuss, Anja, and Julian Agyeman. "Mind the Gap: why do people act environmentally and what are the barriers to pro-environmental behavior?" *Environmental Education Resource* 8.3 (2002): 239-60. Print.
- Pelletier, Luc G., Stephanie Dion, Kim Tuson, and Isabelle Green-Demers. "Why Do People Fail to Adopt Environmental Protective Behaviors? Toward a Taxonomy of Environmental Amotivation." *Journal of Applied Social Psychology* 29.12 (1999): 2481-504. Print.
- Petersen, John E., Vladislav Shunturov, Kathryn Janda, Gavin Platt, and Kate Weinberger. "Dormitory residents reduce electricity consumption when exposed to real-time visual feedback and incentives." *International Journal of Sustainability in Higher Education* 8.1 (2007): 16-33. Print.